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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,916	09/08/2005	Shinya Naito	89277.0053	1926
26021	7590	09/11/2007		
HOGAN & HARTSON L.L.P. 1999 AVENUE OF THE STARS SUITE 1400 LOS ANGELES, CA 90067			EXAMINER NGUYEN, HONG VINH T	
			ART UNIT 2834	PAPER NUMBER
			MAIL DATE 09/11/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/523,916	Applicant(s) NAITO ET AL.	
	Examiner Hong-Vinh Nguyen	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 February 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____ |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :05/16/2007,05/09/2007,07/18/2007.

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words.

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the *end portion of the tooth which opposes the magnet when the coil is energized is smaller than the cross-sectional area perpendicular to the line of magnetic force at the plurality of teeth disposed in the coil* must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure

is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5-6, 11-16, 18, 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Naito et al. (hereinafter "Naito").

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in

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the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claims 1-3:

Naito discloses an electric machine including a magnet for a magnetic field, comprising laminated tooth and yoke, wherein the tooth includes a first portion to be inserted into the opening and a second portion to be disposed in the coil, and a third portion to connect the first and second portions. Naito further discloses the machine wherein a plurality of teeth are provided and are mounted to the yoke in a state in which the lines of magnetic force generated at the respective portions of the plurality of teeth stored within the coils when the coil is energized extend in parallel with each other (see Fig. 13, and 20C).

Regarding claim 5-6, 18:

Naito discloses the electric machine as in claim 1 above, wherein the plurality of teeth are at least partly stored within the plurality of coils, and the plurality of cores are disposed in a vicinity of the magnet-opposed end portions of the teeth, and the cores and coils are integrally molded (see Fig. 11-13).

Regarding claims 11-16, 20:

Naito discloses an electric machine comprising a yoke and a tooth fixed to each other in a state in which at least part of the tooth is inserted into the opening in the yoke; and a cross-sectional area perpendicular to a line of magnetic force of the tooth at a portion inserted into the opening when a coil is energized is larger than a cross-sectional area perpendicular to the line of magnetic force at a portion of the tooth stored

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in the coil. The machine further comprises a magnet, a cylindrical magnetic field, lamination of the tooth parallel with a direction of magnetic flux of magnet and the yoke is laminated in a direction different from a direction of a layer of the tooth. The lines of magnetic force generated at respective portions of the plurality of teeth stored within coils when the coil is energized extend in parallel with each other (see Fig. 12, 13 and 20C

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5-6, 11-16, 18, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petersen (US 4,745,345) in view of Forbes et al. (US 4,712,035 hereinafter "Forbes").

Regarding claim 1 and 2:

Petersen discloses a motor including a magnet for a magnetic field comprising:

*a tooth disposed so as to oppose the magnet at a predetermined gap
being laminated in parallel with a direction of magnetic flux of the magnet;
a coil having at least part of the tooth disposed therein; and
a yoke disposed as to oppose the magnet and being laminated in a
direction different from a direction of a layer of the tooth, wherein*

the yoke further includes an opening provided so as to face from a surface opposing the magnet toward an opposite surface, the tooth and the yoke are fixed to each other in a state in which at least part of the tooth is inserted into the opening (see Fig. 6 and 8).

However, Petersen fails to teach that the *cross-sectional area perpendicular to a line of magnetic force of the tooth at a portion inserted into the opening when the coil is energized is larger than a cross-sectional area perpendicular to the line of magnetic force at a portion of the tooth stored in the coil.* Forbes discloses a pole structure wherein the cross-sectional area of the tooth at a portion inserted into the opening is larger than a cross-sectional area at a portion of the tooth stored in the coil (see Forbes Fig. 16 and 21). It would be obvious for one having ordinary skill in the art at the time of the invention to combine the teachings of Petersen and Forbes. One motivation is to provide the structural support to attach the tooth to the yoke firmly, allowing it to extend outward defining the magnetic gap between the tip of the pole tooth and the rotor (see Forbes Col. 2 lines 50-66).

Regarding claim 2:

Petersen discloses the motor as in claim 1 above, wherein the tooth is formed by laminating a plurality of steel plates. However, Petersen fails to disclose the tooth having a *first portion to be inserted into the opening and a second portion to be disposed in the coil, and a third portion to connect the first and second portions, and in that a length of the first portion in a direction perpendicular to the magnetic flux of the magnet is longer than a length of the second portion perpendicular to the magnetic flux*

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of the magnet. Forbes does teach this feature in Figs. 16 and 21. It would be obvious for one having ordinary skill in the art at the time of the invention to combine the teachings of Petersen and Forbes. One motivation is to provide the structural support to attach the tooth to the yoke firmly, allowing it to extend outward defining the magnetic gap between the tip of the pole tooth and the rotor (see Forbes Col. 12 lines 50-66).

Regarding claim 3:

Petersen discloses the motor as in claim 1 above, *wherein a plurality of teeth are provided, and the plurality of teeth are mounted to the yoke in a state in which the lines of magnetic force generated at respective portions of the plurality of teeth stored within coils when the coil is energized extend in parallel with each other* (see Fig. 6).

Regarding claim 5 and 6:

Petersen discloses the motor as in claim 1 above, *wherein a plurality of coils are provided and the plurality of teeth are at least partly stored within the plurality of coils, and the plurality of coils are integrally molded so that the lines of magnetic force at respective portions of the plurality of teeth stored in the coils extend substantially parallel with each other when the plurality of coils are energized* (see Fig. 6). Fig. 8 depicts an integral bobbin unit comprising the tooth laminations and winding.

Regarding claim 11:

Petersen discloses a motor comprising:

a yoke having an opening provided so as to face from a surface opposing a magnet toward an opposite surface, the yoke and a tooth are fixed to each other in a state in which at least part of the tooth is inserted into the opening. However, Petersen

fails to disclose a *cross-sectional area perpendicular to a line of magnetic force of the tooth at a portion inserted into the opening when a coil is energized is larger than a cross-sectional area perpendicular to the line of magnetic force at a portion of the tooth stored in the coil*. Forbes discloses a pole structure wherein the cross-sectional area of the tooth at a portion inserted into the opening is larger than a cross-sectional area at a portion of the tooth stored in the coil (see Forbes Fig. 16 and 21). It would be obvious for one having ordinary skill in the art at the time of the invention to combine the teachings of Petersen and Forbes. One motivation is to provide the structural support to attach the tooth to the yoke firmly, allowing it to extend outward defining the magnetic gap between the tip of the pole tooth and the rotor (see Forbes Col. 12 lines 50-66).

Regarding claim 12:

Claim 12 contains a minor typographical error – *comprising a **magnetic** for a magnetic field*. The Examiner will assume **magnet** is meant to further treat the claim on the merit.

Petersen discloses a motor as in claim 11 above, further comprising a magnet for a magnetic field (see Fig. 6).

Regarding claim 13 and 14:

Petersen discloses a motor as in claim 11 above, *wherein the tooth is laminated in parallel with a direction of magnetic flux of the magnet and the yoke is laminated in a direction different from a direction of a layer of the tooth* (see Fig. 6-9).

Regarding claim 15:

Petersen discloses a motor as in claim 11 above, *wherein the tooth is formed by laminating a plurality of steel plates*. However, Petersen fails to disclose a tooth having *a first portion to be inserted into the opening and a second portion to be disposed in the coil, and a third portion to connect the first and second portions, and in that a length of the first portion in a direction perpendicular to the magnetic flux of the magnet is longer than a length of the second portion perpendicular to the magnetic flux of the magnet*.

Forbes does teach this feature in Figs. 16 and 21. It would be obvious for one having ordinary skill in the art at the time of the invention to combine the teachings of Petersen and Forbes. One motivation is to provide the structural support to attach the tooth to the yoke firmly, allowing it to extend outward defining the magnetic gap between the tip of the pole tooth and the rotor (see Forbes Col. 12 lines 50-66).

Regarding claim 16:

Petersen discloses a motor as in claim 11 above, *wherein a plurality of teeth are provided, and the plurality of teeth are mounted to the yoke in a state in which the lines of magnetic force generated at respective portions of the plurality of teeth stored within coils when the coil is energized extend in parallel with each other* (see Fig. 6).

Regarding claim 18:

Petersen discloses a motor as in claim 1 above, *wherein the magnetic field is in a cylindrical shape* (see Fig. 6).

Regarding claim 20:

Petersen discloses a motor as in claim 11 above, *wherein the magnetic field is in a cylindrical shape* (see Fig. 6).

Claims 4,7-10, 17,19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petersen in view of Forbes, and further in view of Kilbourne (US 2,236,291).

Regarding claim 4:

Petersen discloses the motor as in claim above, however fails to disclose *the cross-sectional area perpendicular to the line of magnetic force generated at the plurality of teeth at the magnet-opposed end portion of the tooth which opposes the magnet when the coil is energized is smaller than the cross-sectional area perpendicular to the line of magnetic force at the plurality of teeth disposed in the coil.*

Kilbourne does disclose this feature in Fig. 1. It would be obvious for one having ordinary skill in the art at the time of the invention to combine the above teachings to design a tooth tip with a smaller cross-sectional area than its main body to make it easier to slip a bobbin or winding into it, as well as to create more of a gap between the teeth so there would be no interference.

Regarding claim 7:

Claim 7 contains a minor typographical error – *generated at **the a** magnet-opposed.*

Petersen discloses a motor having a magnet for a magnetic fields, comprising:
a tooth disposed so as to oppose the magnet at a predetermined gap;
a coil having at least part of the tooth disposed therein.

However, Petersen fails to disclose the tooth *wherein a cross-sectional area perpendicular to a line of magnetic force generated at the magnet-opposed end portion*

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of the tooth opposing the magnet is smaller than the cross-sectional area perpendicular to the line of magnetic force generated at a portion of the tooth to be disposed within the coil when the coil is energized. Kilbourne does disclose this feature in Fig. 1. It would be obvious for one having ordinary skill in the art at the time of the invention to combine the above teachings to design a tooth tip with a smaller cross-sectional area than its main body to make it easier to slip a bobbin or winding into it, as well as to create more of a gap between the teeth so there would be no interference.

Regarding claim 8 and 9:

Petersen discloses a motor as in claim 7 above, and further comprising:

a yoke to which the tooth is to be fixed;

wherein a plurality of teeth and cores are provided, at least part of respective teeth are stored within corresponding coils, respectively, and

the teeth are fixed to the yoke so that the lines of magnetic force generated at the portions of the respective teeth stored in the coils extend substantially parallel with each other when the coils are energized, and the respective coils are integrally molded so that the lines of magnetic force generated at portions of the respective teeth stored in respective coils extend substantially in parallel with each other (see Fig. 6 and 8).

Regarding claim 10:

Petersen discloses a motor as in claim 7 above, *wherein the yoke is provided with openings formed from a surface opposing the magnet toward the other surface, at least part of the respective teeth is fixed to the opening.* However, Petersen fails to disclose *the cross-sectional areas of the respective teeth perpendicular to the lines of*

magnetic force generated at the teeth disposed inside the opening is larger than the cross-sectional area perpendicular to the lines of magnetic force at portions of the teeth stored with in respective coils when the respective coils are energized. Forbes discloses a pole structure wherein the cross-sectional area of the tooth at a portion inserted into the opening is larger than a cross-sectional area at a portion of the tooth stored in the coil (see Forbes Fig. 16 and 21). It would be obvious for one having ordinary skill in the art at the time of the invention to combine the teachings of Petersen and Forbes. One motivation is to provide the structural support to attach the tooth to the yoke firmly, allowing it to extend outward defining the magnetic gap between the tip of the pole tooth and the rotor (see Forbes Col. 12 lines 50-66).

Regarding claim 17:

Petersen discloses a motor as in claim 11 above, however fails to disclose the motor *wherein the cross-sectional area perpendicular to the line of magnetic force generated at the plurality of teeth at the magnet-opposed end portion of the tooth which oppose the magnet when the coil is energized is smaller than the cross-sectional area perpendicular to the line of magnetic force at the plurality of teeth disposed in the coil.* Kilbourne does disclose this feature in Fig. 1. It would be obvious for one having ordinary skill in the art at the time of the invention to combine the above teachings to design a tooth tip with a smaller cross-sectional area than its main body to make it easier to slip a bobbin or winding into it, as well as to create more of a gap between the teeth so there would be no interference.

Regarding claim 19:

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Petersen discloses a motor as in claim 7 above, *wherein the magnetic field is in a cylindrical shape* (see Fig. 6).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Narita et al. (US 6,809,453) and Kliman et al. (US 6,445,105).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hong-Vinh Nguyen whose telephone number is (571) 270 1743. The examiner can normally be reached on Monday through Friday 8 am to 5 pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on (571) 272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HVN
8/27/2007


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